

**REMARKS**

Receipt of the Office Action mailed July 29, 2009, is hereby acknowledged. Claims 1 and 16-34 are pending and under consideration. Claims 1, 21, and 22 have been amended to replace the phrase "nitration of" with --nitrating-- and to make some minor grammatical changes. These amendments merely conform the claim language with more conventional U.S. practice and addresses the Examiner's objection to these claims. No new matter has been added.

The Examiner has rejected claims 1 and 16-34 under 35 U.S.C. § 103(a) as allegedly anticipated by Langlet, et al., U.S. Patent No. 5,976,483 ("Langlet I"), in view of Langlet, U.S. Patent No. 6,291,711 ("Langlet II") and Seyerl, U.S. Patent No. 4,559,409 ("Seyerl"). The Examiner asserts that:

"It would have been obvious...to have modified the method provided by Langlet I, by adding a source of guanylurea ion, e.g. a guanylurea salt such as guanylurea nitrate or an aqueous slurry of cyanoguanidine which is hydrolyzed by acid to form protonated guanylurea *in situ*, to the acidic reaction mixture in order to obtain the precipitate, guanylurea dinitramide, motivated by the fact that the skilled artisan would have expected results by substituting a neutralizing agent, such as guanidium disclosed by Langlet I, with the guanylurea ion formed *in situ* as suggested by Seyerl, because the neutralizing agent and the guanylurea are both protonated in the aqueous acidic reaction mixture and act as the stabilizing nitrogen-containing cation for the negatively charged dinitramidic acid. The skilled artisan would have also appreciated making guanylurea ion from

cyanoguanidine to permit a much higher yield and purity of the corresponding guanylurea salt by comparison with pervious methods...and that the optimized level of guanylurea ion in the reaction mixture would help maximize the yield of the desired guanylurea salt."

(Office Action, p. 4). Applicants respectfully traverse this rejection.

Applicants submit that the Examiner is only able to reconstruct the presently claimed invention by means of hindsight and explicit reliance on the teachings of Applicants' specification. It is axiomatic that such reliance and hindsight-based reconstruction is improper in making an obviousness rejection under § 103(a).

In particular, in combining the various references, the Examiner has picked out only those sections which support his arguments, while ignoring many critical sections of those documents. Thus, the Examiner has overlooked the fact that the documents are simply not combinable in the fashion he has suggested.

The Examiner asserts that it would have been obvious to use a guanylurea salt in the process of Langlet I "because the neutralizing agent and the guanylurea are both protonated in the aqueous acidic reaction mixture and act as the stabilizing nitrogen-containing cation for the negatively charged

dinitramidic acid." Applicants respectfully submit that this is not a reason to make the necessary substitution, but merely is an observation which is only made possible by knowing about Applicants' invention.

As discussed in their prior amendment, a person skilled in the art would not have chosen to use guanylurea or a protonated form thereof (from Langlet II), which are not mentioned as an option in Langlet I, to neutralize the reaction mixture of Langlet I's process. The reaction mixture of Langlet I is very acidic, with the pH of such a mixture being at or below 0. To neutralize such a reaction mixture, the person of skill in the art would choose a strong base. However, the guanylurea ion is not a base but instead acts as a weak acid. Therefore, adding guanylurea or a protonated form thereof to the reaction mixture could not possibly raise the pH of the solution in Langlet I to 7 (or even  $7 \pm 1$ ), even if added in enormous amounts. A person of ordinary skill in the art simply would not have thought to use guanylurea in Langlet I's process.

The Examiner dismisses the significance of the extremely low pH in Langlet I as outlined above on the grounds the low pH occurs during the nitrating step of Langlet I's process. While the low pH in Langlet I does occur during the

nitrating step, Langlet I requires that the pH of the solution then be raised. As discussed above, guanylurea would not achieve this goal. Thus, a person of skill in the art would have had no reason to combine the guanylurea of Langlet II with the process of Langlet I.

The Examiner also relied on the statement made by Applicants in their last amendment that:

"Use of guanylurea ions in the presently claimed process is critical. This is because use of the guanylurea ions permits recycling of the reaction mixture as an acid, because the guanylurea dinitramide that is formed is stable in the acid environment and is precipitated directly from the acid reaction mixture without neutralization of the reaction mixture. Thus, the use of guanylurea ions solves the problem with recycling and reprocessing of the reaction mixture in an environmentally friendly and economical way."

Based on this statement - made by the Applicants long after the effective filing date of their application - the Examiner then concluded that:

"It appears that Applicant made the point that the skilled artisan with knowledge of Langlet I would have used guanylurea ions, if it was the skilled artisan's interest to resolve the problem of recycling and reprocessing the reaction mixture in an environmentally friendly and economical way."

(Office Action, p. 7). Applicants are astonished that the Examiner appears to have taken a statement made by Applicants about the advantages of their process as evidence of what a person of skill in the art would have known or believed in order to modify the prior art process. This is clearly improper.

In addition to the fact that a person of skill of skill in the art would not use guanylurea ions to raise to the pH of the nitrated solution in Langlet I's process (for the reasons outlined above), there would have been no reason, absent Applicants' own teachings, to combine the teachings of Langlet I and Langlett II. Langlet I's process uses nitrating acid, which is a mixture of sulphuric acid and nitric acid, to yield a strongly acidic solution. Langlet II uses sulphuric acid as a chemical in a process for making guanylurea dinitramide in a reaction mixture that is moderately acidic (pH 5-7, col. 3, lines 32-34). The acidity is achieved by adding sulfuric acid to the water. The use of a slightly acidic reaction mixture makes the process of Langlet II very different from the process of Langlet I, which uses a nitrating acid as a reaction mixture for its process; the two alternatives are never interchangeable in chemical contexts.

As noted in the last amendment, a person skilled in the art would not substitute a moderately acidic solution, wherein the pH value is kept to about pH 5-7, with nitrating acid, which produces a pH at or below 0. The Examiner has rejected this argument on the grounds that Applicants are:

"comparing a nitrating step of Langlet I that would result in dinitramidic acid, not the dinitramide salt, to a step of dissolving guanyluarea dinitramide in acidic water in Langlet II. These process steps are not comparable."

(Office Action, p. 8) Applicants respectfully submit that the Examiner has missed the significance of the argument. Langlet II, which is directed to the compound guanyluarea dinitramide (GUDN), *per se*, teaches that GUDN is best prepared at a modestly acidic pH (5-7). Langlet I, on the other hand, describes a process which occurs at a highly acidic pH. Thus, a person of skill in the art would not look to combine them.


Seyerl - which is directed to a process for the production of guanyluarea sulfamate - does not cure the deficiencies of Langlet I and Langlet II. Accordingly, Applicants respectfully request withdrawal of the obviousness rejection.

**Conclusion**

It is believed that in view of the foregoing amendments and remarks the claims are now in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

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